

WHAT IS CLAIMED:

1. A connection arrangement for detachably connecting a first component to a second component, the arrangement comprising:

a retaining bolt adapted to extend through the first component;

the retaining bolt comprising an external thread;

a connector device being adapted to receive the retaining bolt;

the connector device comprising at least two shell-shaped threaded-nut segments and a housing which includes an opening adapted to receive an end of the retaining bolt and an internal taper which tapers towards the opening;

each of the at least two shell-shaped threaded-nut segments being arranged in the housing and comprising an outer tapered surface which movably engages the internal taper of the housing;

a mechanism for biasing the at least two shell-shaped threaded-nut segments towards the opening of the housing; and

a vibration-damping member,

wherein the connector device is mounted to the vibration damping member, and

wherein the at least two shell-shaped threaded-nut segments are adapted to threadably engage the external threads of the retaining bolt.

2. The arrangement of claim 1, wherein the connecting arrangement is adapted to detachably connect the first component having a first opening to the second component having a second opening when the first and second openings are aligned with one another.

3. The arrangement of claim 1, wherein the outer tapered surface of each shell-shaped threaded-nut segment has the form of a bevel.

4. The arrangement of claim 1, wherein each of the at least two shell-shaped threaded-nut segments are adapted to move towards and away from the opening of the housing.

5. The arrangement of claim 1, wherein the mechanism for biasing the at least two shell-shaped threaded-nut segments towards the opening of the housing comprises a spring.

6. The arrangement of claim 1, wherein the retaining bolt is adapted to move the at least two shell-shaped threaded-nut segments against the biasing force of the mechanism for biasing, wherein the external threads of the retaining bolt are adapted to move, without rotating, past internal threads of the at least two shell-shaped threaded-nut segments, and wherein the external thread of the retaining bolt are adapted to threadably engage with the internal threads of the at least two shell-shaped threaded-nut segments when the retaining bolt is rotated.

7. The arrangement of claim 1, wherein the at least two shell-shaped threaded-nut segments are spaced apart from each other.

8. The arrangement of claim 1, further comprising stops arranged in the housing, wherein the at least two shell-shaped threaded-nut segments are spaced apart from each other via the stops.

9. The arrangement of claim 8, wherein the stops are located on an inner surface of the housing and project into spaces separating the at least two shell-shaped threaded-nut segments, whereby the stops prevent rotational movement of the at least two shell-shaped threaded-nut segments.

10. The arrangement of claim 1, wherein the mechanism for biasing is located in the housing.

11. The arrangement of claim 1, wherein the mechanism for biasing is located between a floor of the housing and an annular member which is adapted to move axially.

12. The arrangement of claim 11, wherein the annular member comprises one of a disk and a washer and wherein the annular member is adapted to contact the at least two shell-shaped threaded-nut segments.

13. The arrangement of claim 11, wherein the floor of the housing and the annular member each include an opening configured to at least one of receive the retaining bolt and guide the retaining bolt.

14. The arrangement of claim 1, wherein the housing comprises one of an edge which projects outwardly, a plurality of edge-segments which project outwardly and a circumferential flange which projects outwardly.

15. The arrangement of claim 1, wherein the housing comprises a circumferential flange which projects outwardly and which is adapted to be attached to the second component.

16. The arrangement of claim 1, wherein the connector device is arranged within the vibration damping member.

17. The arrangement of claim 1, wherein the vibration-damping member is a vibration-damping ring and wherein the connector device is surrounded by the vibration damping ring.

18. The arrangement of claim 1, wherein the vibration-damping member comprises one of rubber and an elastomer.

19. The arrangement of claim 1, wherein the vibration-damping member comprises a vibration damping ring and a hollow cylinder member, wherein the connector device is surrounded by the vibration damping ring, and wherein the vibration-damping ring is connected to an inner surface of the hollow cylinder member.

20. The arrangement of claim 19, wherein the hollow cylinder member comprises one of a supporting edge which projects outwardly, a plurality of edge-segments which project outwardly, and a circumferential flange which projects outwardly.

21. The arrangement of claim 20, wherein the vibration damping ring is adapted to be mounted to an opening of the second component.

22. The arrangement of claim 20, wherein the hollow cylinder member is adapted to be mounted to an opening of the second component.

23. The arrangement of claim 1, further comprising one of a vibration-damping material and an anti-slip material arranged on a outwardly projecting surface of the housing.

24. The arrangement of claim 1, further comprising one of a vibration-damping coating and an anti-slip coating arranged on an outwardly projecting surface of the housing.

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25. The arrangement of claim 1, further comprising a hollow cylinder member surrounding the housing, wherein the housing comprises an outwardly projecting surface whose outer width or diameter is greater than an inner width or diameter of the hollow cylinder member.

26. The arrangement of claim 1, further comprising a centering ring arranged at one end of the housing.

27. The arrangement of claim 1, wherein the centering ring comprises a beveled inner edge located adjacent the opening of the housing.

28. The arrangement of claim 1, further comprising a guide sleeve adapted to receive the retaining bolt, wherein the guide sleeve is adapted to be mounted in an opening of the first component.

29. The arrangement of claim 28, wherein the guide sleeve comprises one of a retaining edge and a retaining flange adapted to rest against the first component.

30. The arrangement of claim 29, wherein the guide sleeve comprises resilient sleeve arms whose free ends include one of tappets and projecting portions which can hook over an edge of the opening of the first component.

31. A connector device adapted to receive a retaining bolt, the member comprising:
a housing which includes an opening adapted to receive an end of the retaining bolt
and an internal taper which tapers towards the opening;
at least two shell-shaped threaded-nut segments arranged in the housing;

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each of the at least two shell-shaped threaded-nut segments comprising internal threads and an outer tapered surface which movably engages the internal taper of the housing; and
a mechanism for biasing the at least two shell-shaped threaded-nut segments towards the opening of the housing; and
a vibration-damping ring surrounding the housing,
wherein the at least two shell-shaped threaded-nut segments are adapted to threadably engage the external threads of the rotatable retaining bolt.

32. The connector device of claim 31, wherein the internal threads of each of the at least two shell-shaped threaded-nut segments comprises partial thread sections.

33. The connector device of claim 31, wherein the housing comprises a circumferential flange which projects outwardly and which is adapted to be attached to a component.

34. The connector device of claim 31, wherein the housing is arranged within the vibration damping ring.

35. The connector device of claim 31, further comprising a hollow cylinder member, wherein the housing is surrounded by the vibration damping ring and wherein the vibration-damping ring is connected to an inner surface of the hollow cylinder member.

36. The connector device of claim 35, wherein the hollow cylinder member comprises one of a supporting edge which projects outwardly, a plurality of edge-segments which project outwardly, and a circumferential flange which projects outwardly.

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37. The connector device of claim 31, further comprising one of a vibration-damping material and an anti-slip material arranged on a outwardly projecting surface of the housing.

38. The connector device of claim 31, further comprising one of a vibration-damping coating and an anti-slip coating arranged on an outwardly projecting surface of the housing.

39. The connector device of claim 31, further comprising a centering ring arranged at one end of the housing.

40. The connector device of claim 31, wherein the at least two shell-shaped threaded-nut segments are spaced apart from each other.

41. The connector device of claim 31, further comprising stops arranged in the housing,

wherein the at least two shell-shaped threaded-nut segments are spaced apart from each other via the stops.

42. The connector device of claim 41, wherein the stops are located on an inner surface of the housing and project into spaces separating the at least two shell-shaped threaded-nut segments, whereby the stops prevent rotational movement of the at least two shell-shaped threaded-nut segments.

43. The connector device of claim 31, wherein the mechanism for biasing is located in the housing.

44. The connector device of claim 31, wherein the mechanism for biasing is located between a floor of the housing and an annular member which is adapted to move axially.

45. The connector device of claim 44, wherein the annular member comprises one of a disk and a washer and wherein the annular member is adapted to contact the at least two shell-shaped threaded-nut segments.

46. A method of connecting the first component to the second component using the connection arrangement of claim 1, the method comprising:

mounting the connector device in a second opening of the second component;

guiding the retaining bolt through a first opening in the first component;

forcing the external threads the retaining bolt past the internal threads of the at least two shell-shaped threaded-nut segments without causing rotation of the at least two shell-shaped threaded-nut segments;

allowing the at least two shell-shaped threaded-nut segments against the biasing force of the mechanism for biasing, whereby the at least two shell-shaped threaded-nut segments move away from the opening of the housing; and

threadably engaging the external threads of the retaining bolt and the internal threads of the at least two shell-shaped threaded-nut segments.

47. The method of claim 46, further comprising rotating the retaining bolt in one direction to cause the first and second components to move towards each other.

48. The method of claim 47, further comprising rotating the retaining bolt in another direction to allow the first and second components to move away from each other.

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49. The method of claim 46, further comprising, after the guiding, further guiding the retaining bolt through the opening of the housing.

50. A connection system for detachably connecting a first component to a second component, the system comprising:

- a fastener comprising a head end, a free end, and an external thread;

- a connector device adapted to receive the free end of the fastener;

- the connector device comprising at least two nut segments and a housing which includes an outwardly projecting flange, an opening adapted to receive the free end, and an internal taper which tapers towards the opening;

- each of the at least two nut segments being arranged in the housing and comprising an outer tapered surface which movably engages the inner tapered surface of the housing;

- a mechanism for biasing the at least two nut segments towards the opening of the housing;

- a vibration-damping ring surrounding the housing,

- wherein the at least two shell-shaped threaded-nut segments are spaced apart from each other,

- wherein the at least two nut segments are adapted to threadably engage the external threads of the fastener, and

- wherein the connecting arrangement is adapted to detachably connect the first component having a first opening to the second component having a second opening when the first and second openings are aligned with one another.